When glia meet induced pluripotent stem cells (iPSCs).

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Public Summary:
The importance of glial cells, mainly astrocytes, oligodendrocytes, and microglia, in the central nervous system (CNS) has been increasingly appreciated. Recent advances have demonstrated the diversity of glial cells and their contribution to human CNS development, normal CNS functions, and disease progression. The uniqueness of human glial cells is also supported by multiple lines of evidence. With the discovery of induced pluripotent stem cells (iPSCs) and the progress of generating glial cells from human iPSCs, there are numerous studies to model CNS diseases using human iPSC-derived glial cells. Here we summarize the basic characteristics of glial cells, with the focus on their classical functions, heterogeneity, and uniqueness in human species. We further review the findings from recent studies that use iPSC-derived glial cells for CNS disease modeling. We conclude with promises and future directions of using iPSC-derived glial cells for CNS disease modeling.

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